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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/981,766	10/19/2001	Yasumasa Takao	215217US0	6675
22850	7590	01/26/2005	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			RICKMAN, HOLLY C	
			ART UNIT	PAPER NUMBER
			1773	

DATE MAILED: 01/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/981,766

Applicant(s)

TAKAO ET AL.

Examiner

Holly Rickman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 6, 8 and 9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-5, 7 and 10-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/10/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The rejection of claims 3-4 under 35 U.S.C. 112, second paragraph, is withdrawn in view of Applicant's amendments.

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-5, 7, and 10-19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The original disclosure fails to provide support for the newly added claim limitations directed to the "non-squarish" shape of the particles, particles that are "smooth, and a "degree of circularity" of "about 1."

The specification references degree of speherical shape but does not describe degree of "circularity" and does not define this measure as being about 1 (there is a separate reference to the ratio of the long axis to short axis being about 1). Furthermore, the specification discusses non-spherical powders which have an "angular" shape but the specification fails to provide support for the term "non-squarish."

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4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-5, 7, and 10-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "smooth" in claim 1 is a relative term which renders the claim indefinite. The term "smooth" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

The claims are rendered indefinite by the term "non-squarish." It is not clear from the specification or the prior art what the metes and bounds of this limitation are. The term "squarish" is a relative term; the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

The claims are rendered indefinite by the phrase "degree of circularity." It is not clear from the specification what this specifically measures. Is it the ratio of the long axis to short axis?

Claim Interpretation

6. In the absence of clear definitions of the claim limitations directed to "non-squarish" shapes, "smooth" and "degree of circularity", these term have been assigned the broadest reasonable interpretation as follows: non-squarish has been interpreted to mean non-square in

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shape. Thus, any shape other than a square shape meets this limitation. Smooth has been interpreted to mean "not rough." Thus, any material that one of ordinary skill in the art would expect to be "not rough" (i.e., a substantially spherical shaped particle) meets the claim limitation. "Degree of circularity" has been interpreted to mean the ratio of a longer spherical axis to a shorter spherical axis.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-5, 7, and 10-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Patent (US5190738).

The limitations "the powder is manufactured... element C," in claim 1, and the entirety of claims 2-5, 10, 13, 16 are process limitations in a product claim and do not appear to be further limiting in so far as the structure of the product is concerned. Even though product claims are limited and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). See MPEP 2113.

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Bearing the above interpretation in mind, claim 1 requires an aluminum nitride filler powder comprising Al, O, and N, or Al and N, wherein the filler powder has a particle size ranging from 0.001-500 micron, with an average particle diameter of 1-100 micron, wherein the external shape of the particles is spherical with a ratio of long axis diameter to short axis diameter is about 1:1 .

Regarding these limitations, Parent teaches a process for producing unagglomerated single crystals of Aluminum Nitride via carbothermal reaction. The product AlN powder has a particle diameter between 10-100 micron, more preferably 10-60 micron (column 2, lines 48-50). Thus, the particle diameter limitation of claim 1 is met. Regarding the degree of circularity, Parent teaches that the single crystals of AlN are "approximately spherical" (column 2, lines 59-61). As a "truly" spherical particle will have a short axis diameter to long axis diameter of 1:1, the examiner takes the position that "approximately spherical" in Parent means "approximately" or "about" spherical. Thus, the approximately spherical powder of Parent will have a short axis diameter to long axis diameter of "about" 1:1. Regarding the composition of the AlN powder required by claim 1. Parent teaches that the following reaction is utilized to generate the AlN powder:



(column 3, lines 35-40). As is clearly shown, the final product of the Parent reaction is AlN, sodium, and carbon monoxide. Thus, the final product of Parent, AlN, reads on the instant claims, though it was made by another or materially different process. Accordingly, Parent anticipates the limitations of claim 1.

Claims 2-5 further limit the process by which the AlN powder of claim 1 is formed.

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However, no evidence has been presented to show that the product produced by the process claimed is any different than that of the prior art. Thus, Parent anticipates the limitations of claim 2 for the reasons set forth above.

The limitations of claim 7 are anticipated as set forth above for claim 1. It is noted that Parent teaches the use of the AIN as a filler material in a polymer binder (column 2, lines 10-18).

9. Claims 1-5, 7, and 10-20 rejected under 35 U.S.C. 102(b) as being anticipated by Ochiai et al. (U55283542).

The limitations "the powder is manufactured... element C," in claim 1, and the entirety of claims 2-5, 10, 13, 16 are process limitations in a product claim and do not appear to be further limiting in so far as the structure of the product is concerned. Even though product claims are limited and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). See MPEP 2113.

Regarding claim 1, Ochiai teaches a composite material that comprises a polymer matrix and a spherical AIN filler powder having an average particle diameter from 20-90 micron (column 3, lines 50-69). Given that the AIN particles are described as spherical, it is the examiners position that the long axis/short axis diameter ratio of the particles of Ochiai is 1 :1. Thus, all of the product limitations of claim 1 are met.

Claims 2-5, 7, and 10-20 are met as set forth above for claim 1.

Response to Arguments

10. Applicant's arguments filed 11/10/04 have been fully considered but they are not persuasive.

Applicant argues that the present claims are patentable over the prior art to Parent and Ochiai because these references use a different process that used in making the presently claimed invention and as a result, the resulting AIN particles taught by Parent and Ochiai are "squarish." The claims now specifically require that the AIN particles are "non-squarish." In the absence of description and support of the term "non-squarish", it has been interpreted to mean non-square in shape. Thus, any shape other than a square shape meets this limitation. As such, the spherical particles disclosed by Parent and Ochiai fall within the scope of the claims.

With regard to Applicant's arguments that different methods are used to make the particles taught by Parent and Ochiai as compared to the direct LPG firing gas phase process used in the present invention, it is noted that this particular process is not required by the claims. Furthermore, Applicant's arguments and descriptions of the differences in the products resulting from the use of these different methods cannot take the place of the submission of *evidence* establishing these differences.

In addition, Applicant's arguments that the method of Parent results in an AIN filler powder that contains group Ia elements as impurities. However, Applicant has presented no *evidence* that establishes that the process of Parent will result in AIN powders that necessarily contain these impurities.

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11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Holly Rickman whose telephone number is (571) 272-1514. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (571) 272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Holly Rickman", with a stylized flourish at the end.

Holly Rickman
Primary Examiner
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January 20, 2005